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HOUSING IMPROVEMENT PROGRAM

HISTORIC PRESERVATION GUIDELINES

CITY OF BOSTON
KEVIN H. WHITE, MAYOR

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HISTORIC PRESERVATION GUIDELINES

HOUSING IMPROVEMENT PROGRAM CITY OF BOSTON

KEVIN H. WHITE, MAYOR

JOHN A. VITAGLIANO, COMMISSIONER, HOUSING INSPECTION DEPARTMENT

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WITH ADVICE FROM

THE MAYOR'S OFFICE OF COMMUNITY DEVELOPMENT,

THE BOSTON REDEVELOPMENT AUTHORITY,

AND THE MASSACHUSETTS HISTORIC COMMISSION.

KEY AND SECTION HEADING DRAWINGS BY JOHN ASH

1977

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TO THE HOMEOWNER

These guidelines have been prepared by the Housing Improvement Program for use by Boston homeowners who plan to make exterior repairs that are visible from a public right of way. If your house is located within a district listed on the National Register of Historic Places, or a district considered eligible for the Register, you must follow these guidelines in order to be eligible for a Housing Improvement Program rebate.

The Housing Improvement Program funds come from the Community Development Block Grant Program; Federal regulations require that these Federal funds not be used in any way that adversely affects National Register properties. The Mayor's Office is responsible for compliance with these regulations. The National Register is a list, maintained by the Department of Interior, of places that are significant in American history, architecture, archeology and culture. Boston has many places included on the National Register. More detailed information on these programs and their regulations are available from the Housing Improvement Program.

These guidelines have been designed to coordinate with the basic rehabilitation goals of the Housing Improvement Program. As is normal in the Housing Improvement Program, your rehabilitation specialist will review what repairs are necessary and desirable on your home. These guidelines will assist you in determining how to do external repairs so that the distinctive characteristics of your house are treated appropriately. They do not require complete restoration, nor do they allow "fake restoration", that is, making a house look like it belongs to another period. Retaining original characteristics is important, as is keeping some additions of a later period. In most cases the recommended procedures can be done at costs comparable to other methods. Your Housing Improvement Program rehabilitation specialist will help you interpret the guidelines and will provide technical advice.

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MASONRY ROW HOUSE



1. FLASHING
2. MANSARD ROOF
3. DORMER
4. GUTTER
5. CORNICE
6. DENTILS
7. FRIEZE
8. LINTEL
9. LIGHT (GLASS)
10. SASH
11. MUNTIN
12. FRAME
13. SHUTTER
14. SILL
15. HOOD OR CANOPY
16. BRACKET
17. PILASTER
18. DOUBLE DOORS
19. MASONRY (BRICK)
20. STEPS (STONE)
21. RAILING (WROUGHT IRON)
22. FENCING (IRONWORK)
23. FENCING BASE
24. BAY

WOOD DETACHED HOUSE

1. FINIAL
2. CRESTING (IRONWORK)
3. CHIMNEY
4. DORMER
5. EYEBROW DORMER
6. GABLE
7. VALLEY (METAL FLASHING)
8. GUTTER
9. DOWNSPOUT
10. CORNICE
11. BAY - TURRETED
12. BAY
13. SHINGLING - FISHSCALE
14. CLAPBOARD
15. LIGHT (GLASS)
16. SASH
17. MUNTIN
18. FRAME
19. PORCH
20. BRACKET
21. COLUMN
22. BALLUSTERS
23. APRON
24. FOUNDATION

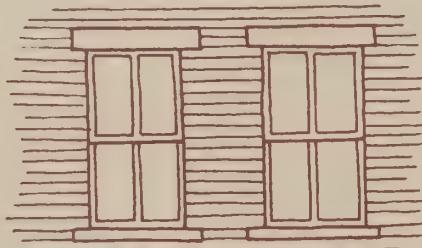




WINDOWS
AND
DOORS

WINDOW AND DOOR OPENINGS

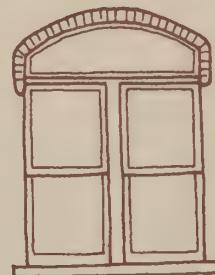
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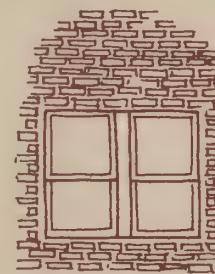
ORIGINAL



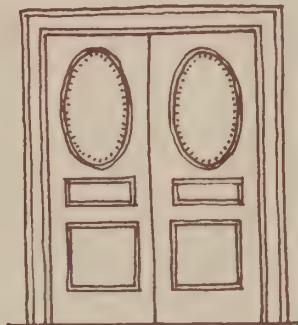
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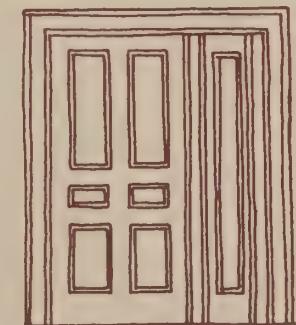
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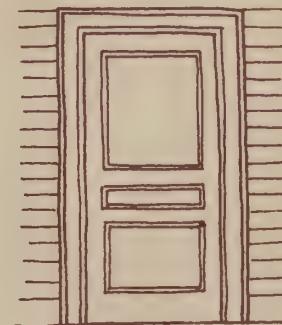
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UNACCEPTABLE

Retain the size of the original window and door openings. No new openings may be added and no original openings may be blocked or altered in size.

The original opening is usually altered in the interest of saving money so that smaller modern sash or doors can be used to replace deteriorated old sash. However, changing the size of the opening is usually more expensive than replacing an old sash with a custom made new sash.



UNACCEPTABLE

Retain and repair original sash whenever possible. Most wooden sash can be preserved indefinitely with caulk, wood preservative, putty, and paint.

If original window sash is deteriorated beyond repair, replace with sash that is consistent with the original design of the house in size, material, type of sash, and number and proportion of lights in the sash. Paint new sash to match other windows. Aluminum sash will not be allowed.

Until the 20th century, window lights were almost always longest in the vertical dimension. See diagram.

FOR EXAMPLE:



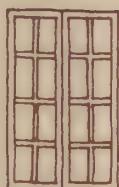
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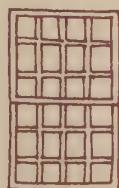
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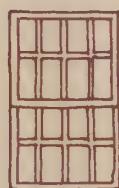
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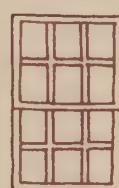
CASEMENT



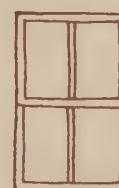
12/12



8/8



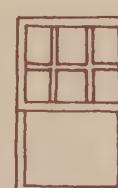
6/6



2/2



1/1



6/1

1600'S

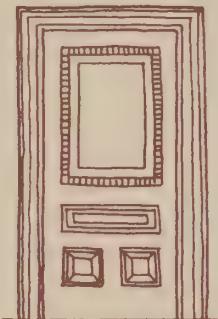
1700'S THROUGH EARLY 1800'S

LATE 1800'S

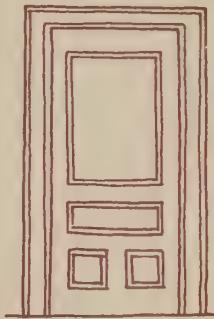
DOOR TYPE

FOR EXAMPLE:

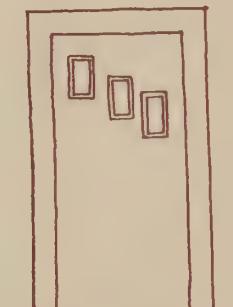
Retain and repair original door(s) whenever possible. When replacement is necessary, choose a door consistent with the original design in size, material, number of doors per opening, scale and style of detail.



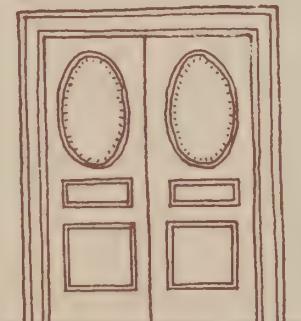
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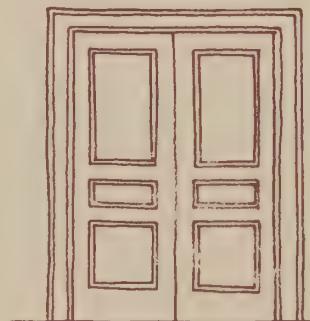
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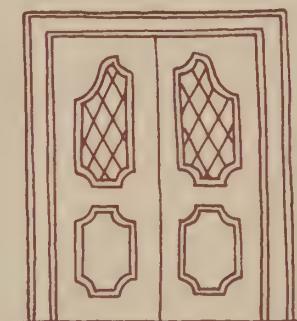
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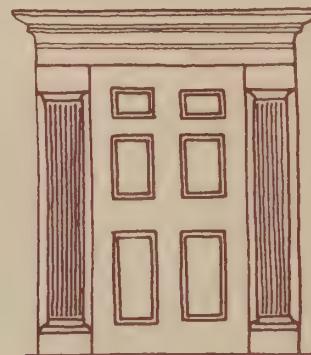
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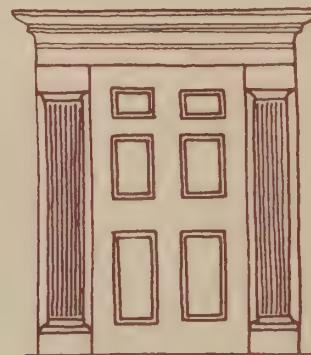
ACCEPTABLE



UNACCEPTABLE



ORIGINAL

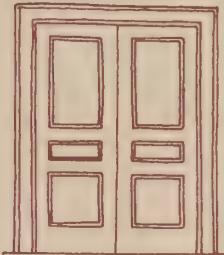


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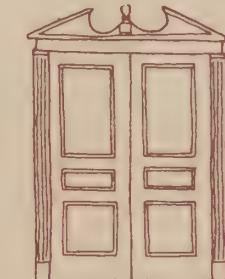
~ORNAMENTATION~

Never remove or cover up ornamentation (frame, molding, stonework, glass panes, etc.) surrounding a window or door. If ornamentation is missing or beyond repair, you are encouraged to replace or duplicate it as closely as possible. If it is impossible to duplicate original detailing, replace with a unit that duplicates the mass of the original. Never add ornamentation that belongs to a different period than your house (e.g., Colonial trim on a Victorian house).

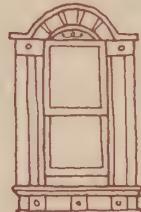
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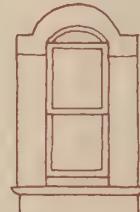
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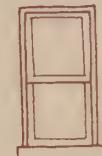
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ORIGINAL



ACCEPTABLE

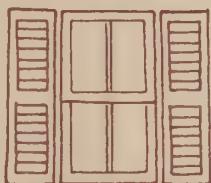


UNACCEPTABLE

If shutters (solid panels) or blinds (louvered panels) were original to the house, they may be retained, repaired or replaced (but are not required). Where shutters or blinds can be demonstrated to be consistent with the original style, they may be added. Otherwise, they may not be added.

Replacements should match the original as closely as possible. In any event, they must be one-half the width of the window opening, as long as the window opening, and be, or appear to be, operable.

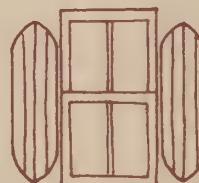
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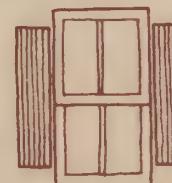
ORIGINAL



ACCEPTABLE



UNACCEPTABLE



CANOPIES OR HOODS



FOR EXAMPLE:

ORIGINAL

UNACCEPTABLE



Any projections over a door or window, ranging from a simple arch to a bracket supported roof, should be retained and repaired. Repairs and replacement pieces should match the material (wood, metal or stone) and mass of the original. Details should be reproduced whenever possible. Unusual elements such as heads, special glass or lettering are especially valuable.

If a canopy or hood is beyond repair and it is economically unfeasible to replace it with one which reproduces the scale, style and mass of the original, it is better to eliminate it entirely than to use a modern replacement such as aluminum awnings (which will not be acceptable in any case).

Canopies or hoods should not be added where they did not originally exist or are not within the context of the original design.

STAINED GLASS, TRACERY, FANLIGHTS

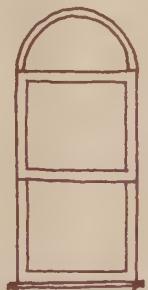
Retain stained glass and tracery when in good repair. (Tracery is the branching of muntins to form a pattern on a window head; above a door, this is called a fanlight.)

You are encouraged to repair or replace damaged stained glass and tracery.

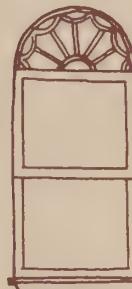
Retention of these elements will generally add to the value of your house. There are increasing numbers of craftspeople in this area who can reproduce or repair stained glass relatively inexpensively. Often the addition of reinforcing bars, re-leading, or replacing single sections of glass will be enough to salvage an old and valuable window.

If repair or replacement is not possible or not desired by the owner, plain glazing is acceptable, but in no case may the opening be blocked or altered in size or shape.

FOR EXAMPLE:



ACCEPTABLE



ORIGINAL



UNACCEPTABLE

SKYLIGHTS

Visible skylights should be repaired or replaced to match original. New skylights should only be added in areas not visible from a public right of way.

STORM DOORS

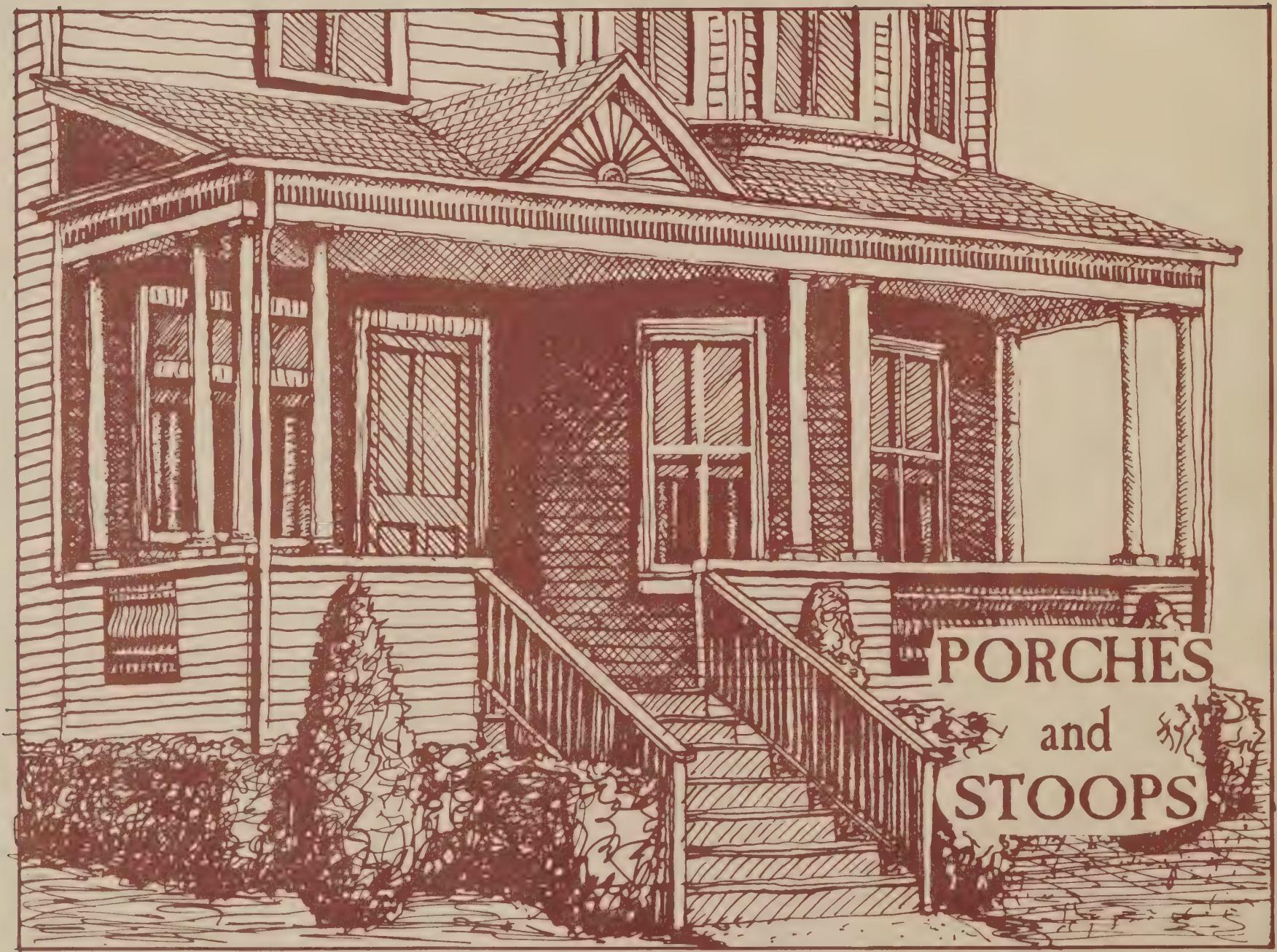
Installing a modern storm door on a visually important front door is discouraged. Good weather stripping and replacing any glazing with thermopane is encouraged as an alternative. Victorian houses often had temporary solid wooden storm doors which were used in the winter months and stored at other times. If you have or can obtain such a door, you are encouraged to use it rather than a modern storm door. If a modern storm door is installed, it should be of the most neutral design. Decorative designs (typically with scallops) call too much attention to the storm door. Even though they often boast "historic" names, they are not really of historic design and should be avoided. Color choice is limited, but color should be selected with regard to blending with other trim color or the color of the door (e.g., if your door color is dark, choose a dark tone for your storm door). Unpainted aluminum will not be allowed. The door opening size or style may not be altered to receive a standard storm door.

STORM WINDOWS

Storm windows must be as unobtrusive as possible. They will, therefore, either be of the old removable wooden type (which are still manufactured or can be bought used and refinished), painted to match the window trim; or aluminum with a factory applied finish to match the shade of the trim color; or aluminum, factory primed with zinc chromate and painted by the owner to match the trim color. Unpainted aluminum will not be allowed. In no case

may the shape or size of the window be changed to receive a standard storm window.

Another alternative is to install storm windows on the inside which is often a good solution for oddly shaped windows.



**PORCHES
and
STOOPS**

GENERAL

Porches and stoops visible from a public right of way must be retained and repaired.

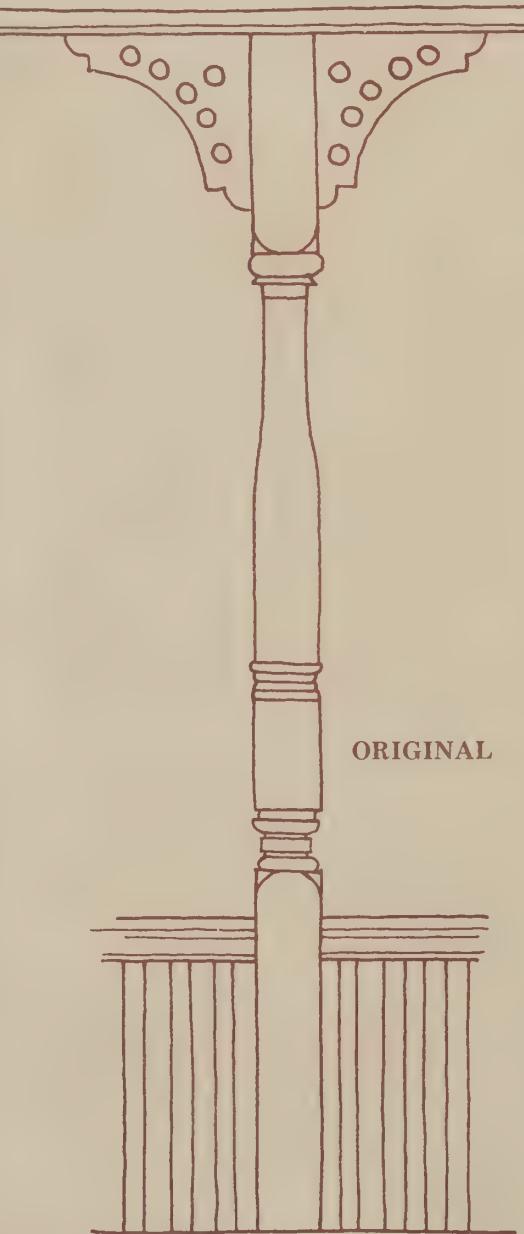
Missing or defective elements, both structural and decorative, should be replaced. Non-visible structural members may be replaced in any manner that is structurally sound. Replacements of visible elements must be of the same material, style and scale as the original, matching the original exactly, if possible. When it is not possible to match the original element, care should be taken to blend the replacement in with the general appearance of the house. For example, you may want to replace all your balusters (or columns, railing, etc.) rather than only the missing or rotted balusters, so that they will continue to match one another. At a minimum, the new elements must be painted or otherwise treated to match the remaining original members. Painting of the entire porch may be required to accomplish this.

No new porch may be added, unless you can demonstrate that an original porch was later removed. In this case, you may replace the original porch in the same location, size, shape and style.

Existing porches may not be enclosed or roofed unless this was the original treatment. Existing porch roofs may not be changed in size or shape (see section on Roofs).

COLUMNS

FOR EXAMPLE:



If columns must be replaced, it is very important that the new columns match the scale of the original. Attention should be paid to how the railing (if any) meets the column and to saving and reinstalling decorative elements such as brackets which are attached to the column.

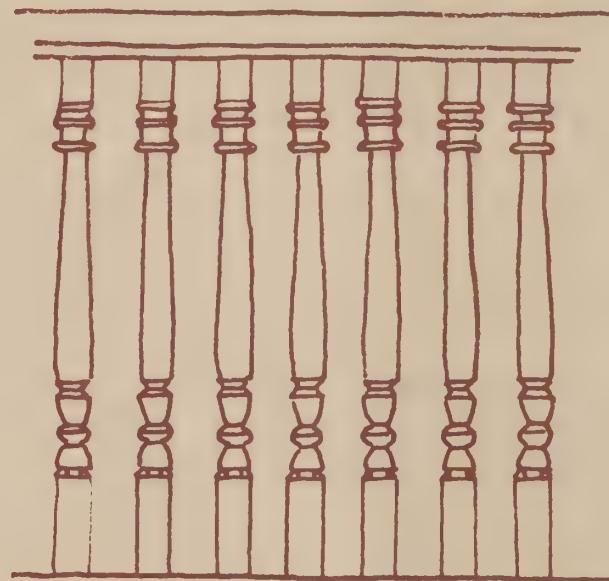
Original railings would have been either of wood or iron. Iron was commonly used with brick row houses and often matched the fencing along the sidewalks. Every attempt should be made to retain and restore this valuable type of railing and fencing.

Iron is very durable and, when protected from rust by paint, will last indefinitely. Most repairs consist of straightening bent pieces and strengthening those joints attacked by rust. An ironworker who is a competent welder can handle most jobs. Procuring replacement pieces or sections is not impossible. Wrought iron is relatively easy and inexpensive to fabricate. It is more expensive to reproduce a cast iron part because a foundry has to make a pattern, a mold, and then the casting. However, several companies offer a broad range of already fabricated ironwork (from old molds) from which you can probably select similar replacement pieces.

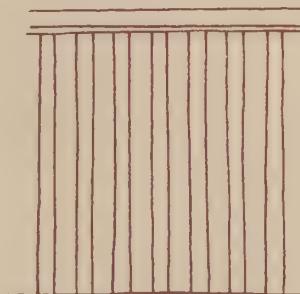
Wood railings took many forms with turned or square sectioned balusters, "stick," "slot," or "hole" compositions, beaded boards, or solid walls shingled to match the rest of the house.

Replacement railings should duplicate the mass and rhythm of the original. Plywood, fiberglass or aluminum panels will not be allowable replacements.

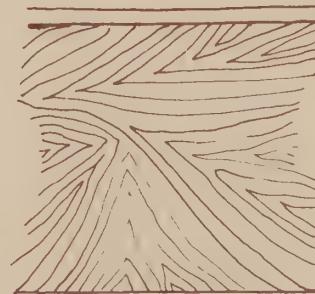
FOR EXAMPLE:



ORIGINAL



ACCEPTABLE



UNACCEPTABLE

~FLOORING~

Deteriorated flooring should be replaced to match the scale and material of the original. For example, a wood deck of 1" x 4's may not be replaced with plywood decking; a brick stoop may not be replaced with concrete. (See section on repair of masonry)

~APRON~

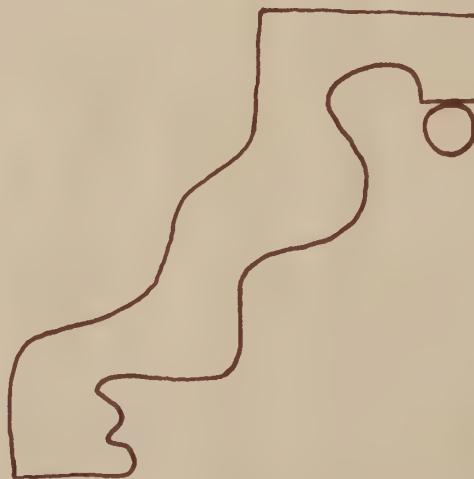
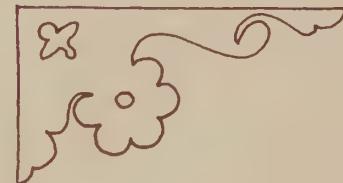
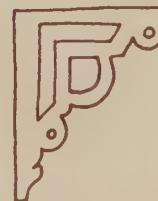
Simple lattice work is easily replaced. The more complicated cut-out patterns of some wooden Victorian houses may be difficult to replace. It should be repaired whenever possible, but in cases of extreme deterioration may be replaced with lattice work, 1" x 3" wood slats, or another unobtrusive alternative.

~STEPS~

Steps should be rebuilt in the same material as the original and painted or not according to original treatment. The run of steps must retain the same dimensions and configuration as the original.

~ORNAMENTATION~

A few of the many types of brackets:



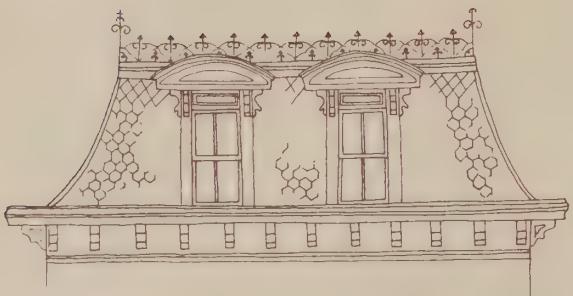
Often acclaimed as an American contribution to architecture, the porch became a focal area for decorative expression, especially in the sawn wood features of the Victorian era. Aside from the decorative forms taken by columns, railings, and porch aprons, the primary porch ornamentation is the bracket. You are encouraged to retain and repair these decorative elements, replacing those that are missing or defective.

ROOFS



STRUCTURAL CHANGES

No structural changes which would alter the roof line as visible from a public right of way will be allowed. This means you must retain dormers, towers, turrets, etc., and additions such as penthouses will not be allowed. No portion of the roof or dormer may be removed to create decks or recesses.



MATERIALS

Slate

If you have a slate roof you must retain and repair it (except as noted below), replacing missing or damaged slates as needed, and re-nailing slates where they are loose. Replacement slates should match the original in size, shape and color. Slate comes in a range of colors from black and grey to red, green and purple, and in a variety of shapes, such as, rectangular, scalloped, hexagonal, etc. Special care should be taken with mansard or steeply pitched roofs, where the roof is particularly visible and where patterns were often created by differently shaped and/or colored slates.

The most commonly used roofing material of Boston's old houses is slate. Slate is the most durable roofing material available, even today, being nearly maintenance free and fireproof. While the initial cost of repairing a badly damaged slate roof may be higher than an overlayment of modern materials, the longer service life of slate usually makes up for this higher cost.

If so many slates are missing or damaged that it is not economically feasible to replace the slate roof, substitute materials may be used, but must closely resemble the slate roof in predominant color and in size and, if possible, shape of the individual slates. There are substitute materials currently on the market that reproduce the color, and, most importantly, the thickness of slate.

METAL

The small roofs of ells, oriel, bows and bays were often covered with sheet metal. These roofs should be retained and not be covered with another material. If they leak, they should be replaced with a new sheet metal roof. Repair of these roofs is generally not adequate; a leak usually signifies general deterioration and total replacement is recommended.

You are encouraged to match the appearance of your original roof, by replacing copper with copper (which will acquire a green patina); lead with either hard lead, lead-coated copper or terne-coated stainless steel, all of which will have, or quickly acquire, a dark grey color; and terne-plated iron with terne metal (steel with an alloy of lead and tin) which should be primed and painted to protect the steel from rusting.

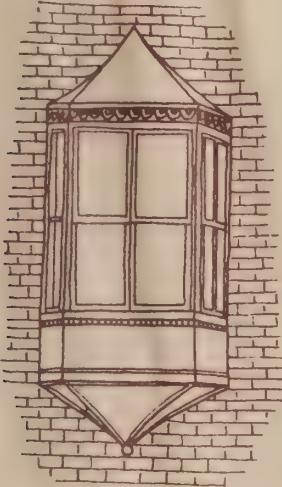
If you prefer to replace your roof with a different metal as referred to above (e.g., lead replacing copper), you may do so, but shiny metal or materials other than metal will not be allowed.

ASPHALT SHINGLES

When installing asphalt shingle roofing on a visible roof, you are encouraged to choose roofing that blends well, in terms of color, with the period of the house and the character of the neighborhood. This will most often mean a dark shade of grey (not "speckled"). Red, green and purple slates were generally only used for a pattern, not for the main part of the roof. Light colors such as white or beige will not be allowed.

FLASHING

Flashing which is not visible, may be replaced with any material deemed structurally sound. In no event may you use tar or pitch for flashing in visible areas and shiny metal is discouraged. The best metals used for flashing are the same as those used for metal roofs, as described above.



ORIEL WITH METAL ROOF

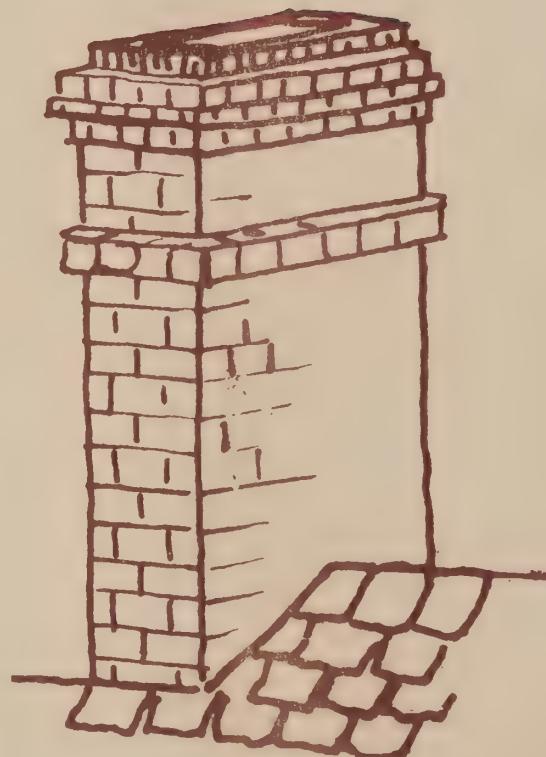


BAY WITH METAL ROOF

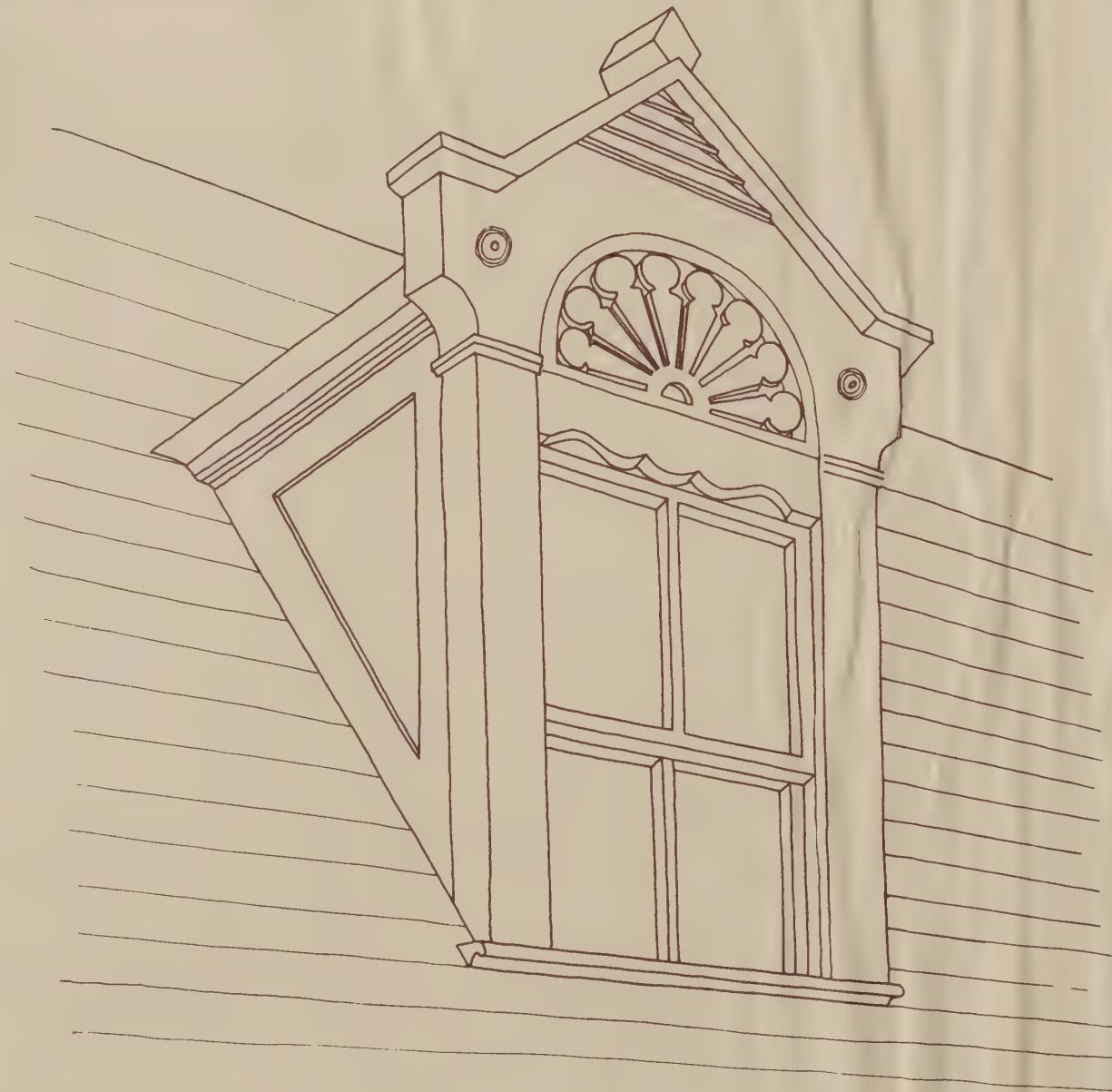
CHIMNEYS

Retain and repair existing chimneys. Repair usually will consist of repointing the bricks. Sometimes all or part of the chimney must be removed and rebuilt using the same brick in new mortar (see section on Masonry).

Original detail should be retained, repaired or replaced whenever possible. Old chimneys, especially those of Victorian vintage, are often elaborate affairs with corbelled bricks, chimney pots, etc., which add immeasurably to the character of the house and should be valued for their decorative as well as functional qualities.



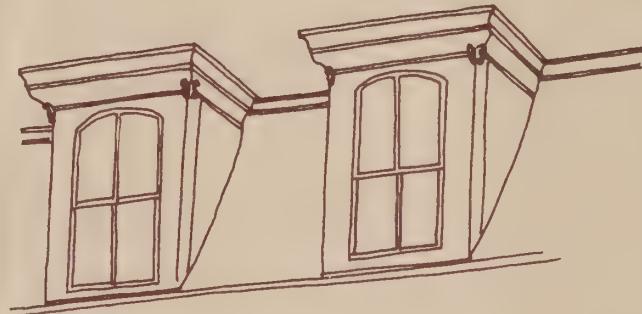
~ DORMERS ~



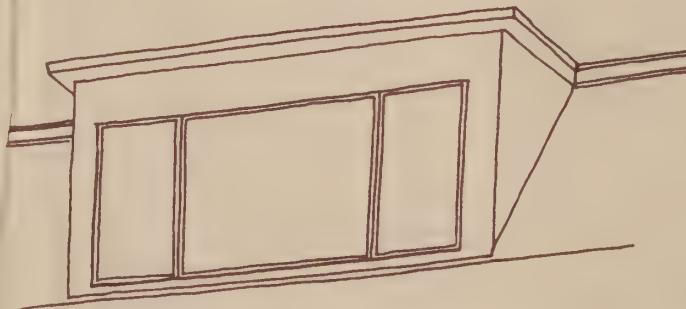
Dormers should be retained and repaired, or replaced entirely when necessary. No original dormer may be removed. Existing dormers may not be joined together to form one larger dormer. Additional dormers may not be added except in cases where it can be demonstrated to be consistent with the original design. If, for example, your house without dormer(s) is otherwise very similar to other houses which do have dormers as part of their original treatment, you may add dormers. In this case, the added dormer(s) will be placed in the same relative location, be the same size, shape and style as the dormer(s) of the similar house(s).

Original detail and surface treatment should be retained or reproduced if possible. Detail will vary widely, depending on the style of the house. For example, many dormers have dentils and brackets and, except for the face and trim, are covered in the same material as the roof; some dormers have wood sides; some have sawn wood ornament; some are of the "eyebrow" shape; etc. A pre-fabricated dormer will rarely meet these requirements.

FOR EXAMPLE:



ACCEPTABLE

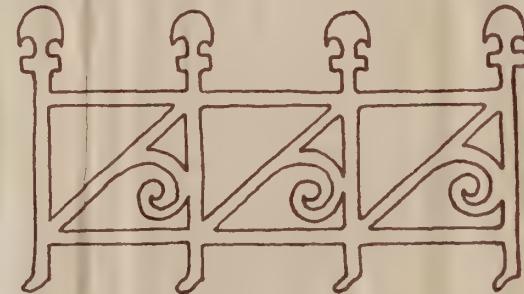
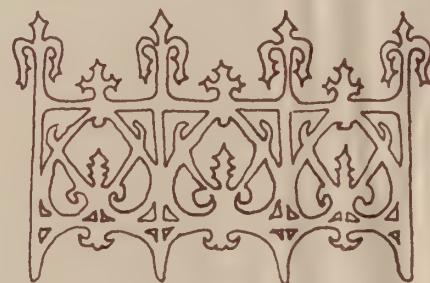
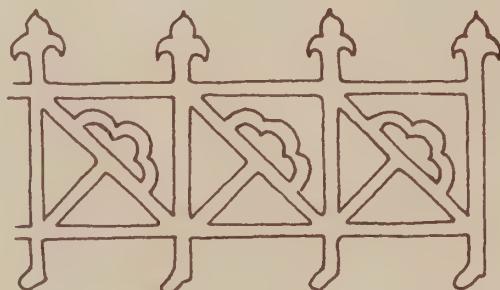


UNACCEPTABLE

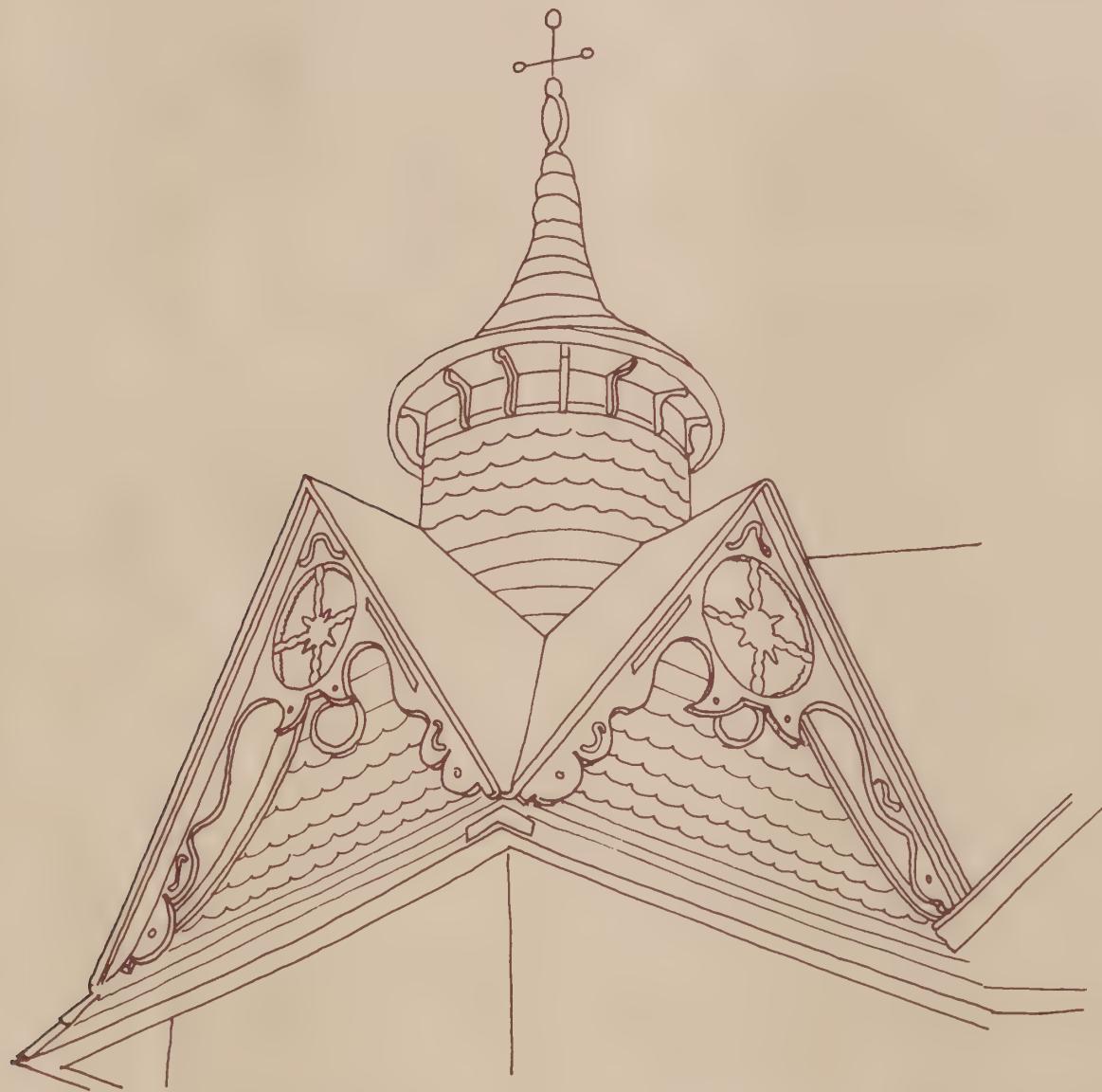
ORNAMENTATION

As with ornamentation generally, roof ornamentation, such as cupolas, finials and cresting, should be retained and repaired whenever possible. Replacements should match the original in size, general shape and type of detail. Cresting should be painted to match the trim of the house. Finials could either be painted to match the trim color or, as was often done, painted in a more fanciful fashion, different strong colors delineating different parts.

CRESTING PATTERNS CIRCA 1880'S



CUPOLA AND FINIAL





**cornice
gutters
&
downspouts**

GENERAL

The treatment of houses at the roof edge serves two functions, both equally important. Practical problems are solved here, such as the protection of roof rafters from the weather and consequent rot and the channeling of water to areas that will not inconvenience people or rot or streak the sides of the house or foundation. Secondly, the cornice is one of the most important decorative elements of an old house.

CORNICE

The entire cornice with all original detail should be retained and repaired. Replacements of the whole or of pieces should match the original in size, shape, type of detail and material.

Particular care should be taken with brick row houses where the overhanging, richly detailed cornice is not only important to the character of the particular house but is also extremely important to the overall street appearance. In these cases, every effort must be made to retain, repair or replace the original cornice, including all the various pieces such as brackets, dentils, etc.

Replacement is not as expensive as many might assume. A number of suppliers stock whole cornice sections or individual decorative pieces made from the old patterns, in both wood and stamped metal.

In the case of detached houses where the original detail has deteriorated beyond repair and where reproduction would be prohibitively expensive, the cornice may be replaced by a simplified cornice which has the same scale. It should never be drastically changed in size or placement. This is one of the most common ways to ruin the appearance of an old house and, unfortunately, is often done when aluminum or vinyl siding is installed.

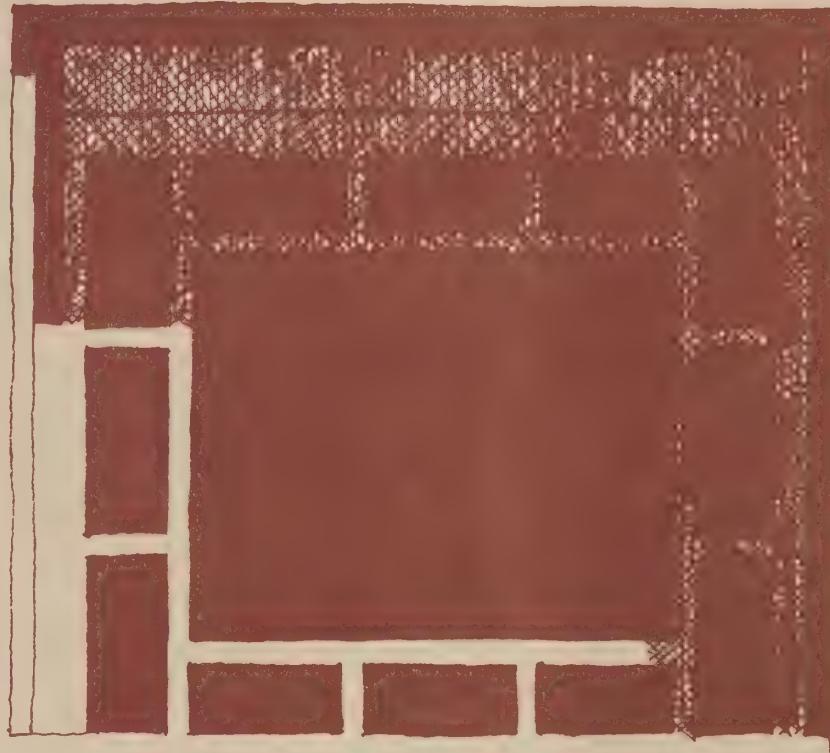
GUTTERS AND DOWNSPOUTS

The size and location of the gutter is an integral part of the cornice configuration. The shape and method of attachment of gutters and downspouts and the detailing of connection joints and elbows are often important to the overall appearance of the house.

Whenever possible, original gutters and downspouts should be retained and repaired, especially those of copper. Replacement gutters and downspouts should be located the same as the original, and, whenever possible, should resemble the original gutters and downspouts in size, shape, and type of detailing.

Copper should remain unpainted, but other gutters and downspouts should be painted to either match the trim color or to blend well with the wall color. For brick walls, choose a dark color that will not contrast starkly with the color of brick. Unpainted aluminum or galvanized iron will not be allowed.

SIDING



GENERAL

Retain and repair original siding. Replacement of defective portions must match the original in appearance. In no case will masonry sheathing (fake or real) be allowed to cover any portion of a wooden house.

Original decorative trim (cornice, cornerboards, brackets, window and door trim, etc.) should be retained, repaired, or replaced and may not be covered over.

CLAPBOARD

Replacement clapboards must be of the same thickness, be installed to run in the same direction and with the same spacing of lap lines as the original clapboards. New and old portions should be painted to match.

ALUMINUM OR VINYL

In general, aluminum or vinyl siding will not be allowed. In cases where your rehabilitation specialist judges the condition of your original clapboards to be one of extreme deterioration, you may opt to use aluminum or vinyl siding. In this event, the new siding must closely approximate the appearance of the original siding.

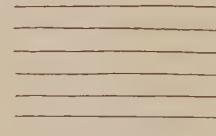
The spacing of the lap lines and the texture of the new siding shall match closely the original siding. (The spacing of horizontal lap lines of most old clapboards approximates 4 inches.)

New siding shall be installed in the same direction as the original clapboards. Any unusual patterns created with the original clapboards shall be duplicated by the new siding.

Particular care must be taken to retain decorative trim—when installing aluminum or vinyl siding, the unfortunate tendency is to remove or cover over much of the trim and this will not be allowed.

Since color is permanent to this type of siding, particular attention must be paid to selecting a color appropriate to the style and period of the house, and to the character of the neighborhood.

FOR EXAMPLE:



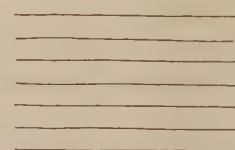
ORIGINAL



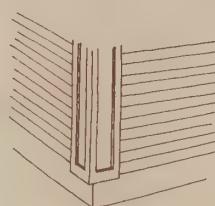
UNACCEPTABLE



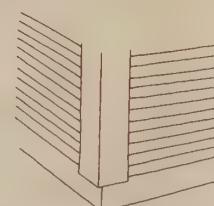
ORIGINAL



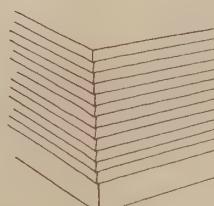
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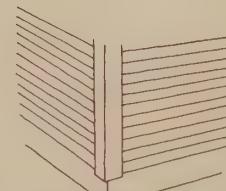
ORIGINAL



ACCEPTABLE



UNACCEPTABLE



Wood shingles should not be replaced with any other type siding, unless it can be shown that the house was not originally sided with wood shingles, in which case the original siding may be exposed and repaired or replaced.

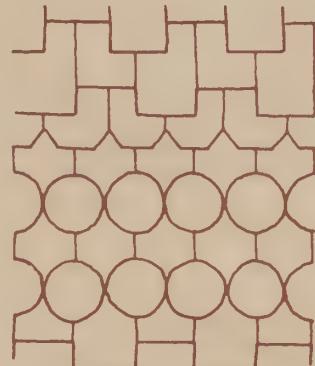
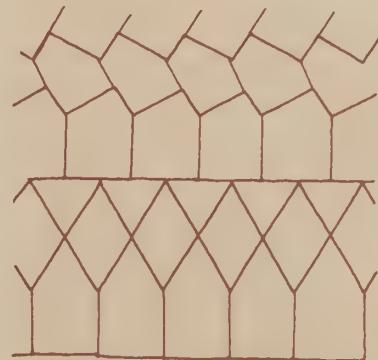
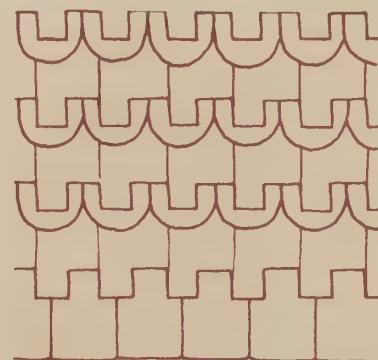
Some wood shingled houses were originally clapboard. The clapboards may have been removed or simply covered with shingles. In this event, you may choose to return to clapboards or use aluminum or vinyl siding. (See guidelines for these materials)

Defective shingles should be replaced with shingles of the same dimensions and type of wood and should be installed with the same dimension to the weather.

The shingling pattern on Victorian houses is often varied and intricate—composed with oddly shaped shingles or by placing shingles in differing relationship to one another. These shingling patterns, where they occur (often in conjunction with clapboards), are very important to the character of the house and should be retained. The quality of these shingles is usually very good and, in most cases, repair will only involve the replacement of a few shingles which may have to be specially cut to match, or can be ordered from one of the manufacturers who still stock special shapes of shingles.

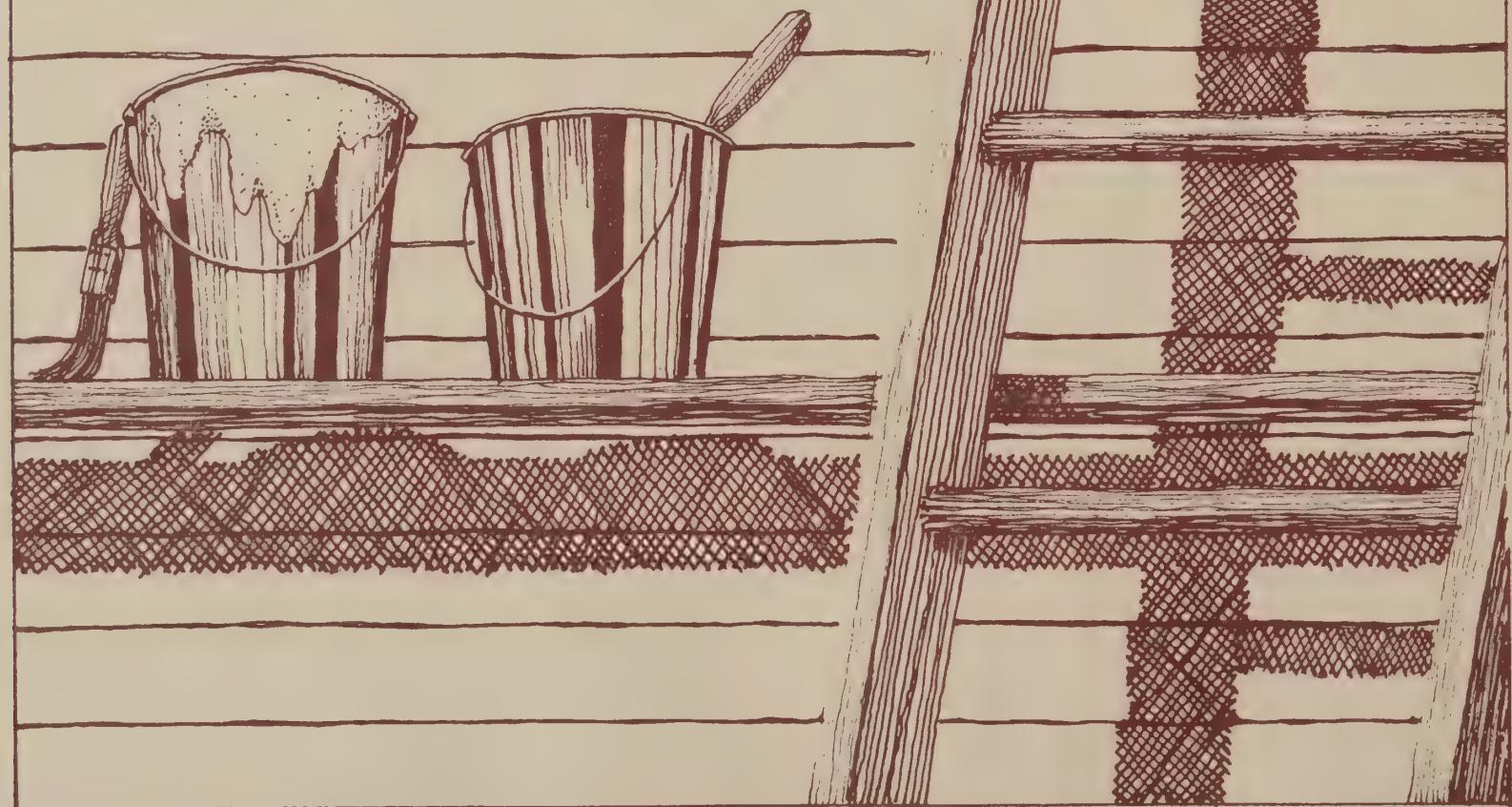
Only in cases of extreme deterioration (as determined by your rehabilitation specialist) will you be allowed to alter the original shingling pattern of these houses and to reshingle using a more conventional, mass produced shingle. In this event, care should be taken to choose a shingle of the same type wood and general scale of the original shingles, to maintain a similar dimension to the weather and to replace areas large enough or contained enough to avoid making the replacement look spotty.

Shingles should be painted, stained, or untreated, in accordance with the original treatment.



SOME OF THE MANY VICTORIAN SHINGLING PATTERNS

Exterior Paint



UNPAINTED SURFACES

WHAT NOT TO PAINT

Do not paint materials that have never been, nor were intended to be painted. This includes most brick, some wood shingles, most stone walls, sandstone trim, mortar, etc.

WHEN TO STRIP

Where paint has already been applied to surfaces not originally intended to be painted, you are encouraged to strip the paint by a method approved for your particular material (see Masonry section for more information).

This process may cost more than paint initially, but in most cases, will substantially reduce future maintenance costs.

If there is good evidence that stripping paint will do irreparable damage to the surface material, you should repair the exterior surface by scraping and repainting.

Paint type and color should be chosen to be consistent with the period and style of the house and the character of the neighborhood.

During the Federal and Greek Revival style periods (1785 - 1850), colors on frame houses were generally light (stone tones, white, yellow, etc.) with trim in another contrasting light color, most often white. At the end of the century, the Revival Styles (Federal, Classical and Georgian) repeated these color patterns.

The years in between are popularly known as the Victorian period which includes several architectural style types. Color trends reacted against the preceding styles. Instead, houses were intended to blend with their surroundings; this meant natural earth tone, and rarely, if ever, white. Most of the paint colors we know today were in use then, but of course, not all were used on the exterior, and most faded more readily.

COLOR

MASONRY TRIM

The trim on masonry row houses should generally be painted one of the earth tones that blends well with the stone or brick. With the earlier styles and their revivals, a lighter tone (sand, grey, beige, off-white) is appropriate, as is the opposite, black. For the Victorian styles, darker earth tones should be selected like forest greens, rusty browns, ocher, greys, etc.

WOOD

For the earlier styles and their revivals, the light single color with contrasting trim combination should be selected. The Victorian style houses were seldom painted a monotone color; darker colors were used to accent the rich detailing of the ornamental trim. The color shades should be selected from the natural or earth tones for both walls and trim.

Most of the quality paint manufacturers produce catalogues of "historic colors." Some of the color names may be misleading in style of period reference; these guidelines should prevail.

MASONRY



When original masonry is already sheathed in another material (e.g., permastone), you are encouraged to remove the sheathing and restore the original masonry. Masonry walls or trim should be retained and repaired, and may not be sheathed in any other material.

Replacement bricks and stone should match the original in size, color and degree of porosity. Replacement mortar should match the original in color, composition and tooling. Masonry surfaces not previously painted, may not be painted.

CAUSES OF DETERIORATION

Brick, mortar and stone (especially sandstone) are porous materials susceptible to damage from moisture and polluting chemicals. Water from rain, condensation, or rising groundwater will cause the masonry to break apart if it seeps into the stone or brick itself and freezes. Water, having entered the stone or brick may also leave deposits of soluble salts just behind the surface. Internal pressure from these salt deposits will eventually cause the stone or brick to crack and flake. Uneven settlement of a wall or inferior materials or methods can also cause deterioration of a masonry wall.

MORTARED WALLS

In cases of severe structural damage, the brick or stonework may need to be rebuilt or entirely replaced. New brick or stonework should match original as closely as possible in terms of color, type of brick or stone and mortar, size of both the individual brick or stone and the joints, and method of building. Used brick should be avoided—rather use a new highly fired brick that matches the original brick. Brick should be laid in the same bond pattern as the original.

Less severe damage is often repaired by pointing—i.e., the replacing of defective mortar joints. The joints to be pointed should be raked out to remove all loose material; the bricks and joints should be wetted and the mortar tuck point firmly into the cleaned joint and tooled to match the original. In general mortar should be recessed slightly from, or flush with, the wall surface so as not to provide a ledge on which water will accumulate.

A soft, porous mortar composed of one part lime, one part cement and six parts sand must be used to rebuild or to point old brick and porous stone. The newer cement mortars are too dense and rigid to be compatible with soft materials of old masonry—they will shrink away from the brick causing cracks and will not allow for adequate evaporation of moisture. Mortar color can be matched to the original by using grey or brown sand or by adding lamp black, a traditional mortar tinting material. Mortar should never be painted.

SANDSTONE (OR BROWNSTONE)

Eroded sandstone may often be restored by building up missing sections. The loose stone is chipped away to prepare the surface. A plastic material which should contain pigments to match the color of the original stone is then applied with a trowel and is formed to match the original stonework. There are several commercial products available to do this job.

When replacing a whole element (such as a lintel), concrete may be used. It must be colored and scored to match the appearance of the original element. Reproduction of an elaborately carved sandstone lintel requires craftsmanship of a high order and it may be more economical to recreate the element in wood. In this case the wood should be treated with pentachlorophenol preservative and painted the color of sandstone.

~ CLEANING ~

The method used to clean masonry should be determined by the strength of the stone or brick and by the nature of the material being removed.

Sandblasting and other abrasive techniques should *never* be used to clean or remove paint from brickwork or stone. These methods destroy the strength of the wall by eroding the hard outer surface leaving the more vulnerable inner layers exposed to the elements. Sandblasting also alters the character of the wall visually by enlarging the mortar joints, rounding the edges of the brick, and by creating an entirely different color quality.

Chemical cleaners used for extremely soiled or painted buildings are usually caustic chemicals mixed with emulsifiers, neutralizers, and various other

compounds to make the substance thicker or thinner. The cleaner is applied to the surface, left to eat away the unwanted material, and then neutralized and washed away. Problems occur when the chemicals are insufficiently neutralized and/or removed. Acid should never be used on limestone or marble as it will dissolve these materials into foam.

Water cleaning methods are the simplest, safest, and usually the least expensive. They include high to low pressure washes and steam. These methods should only be used at temperatures above freezing on masonry surfaces with sound mortar joints. Possible damage from excess water retention or chemical reactions resulting from water may also occur.

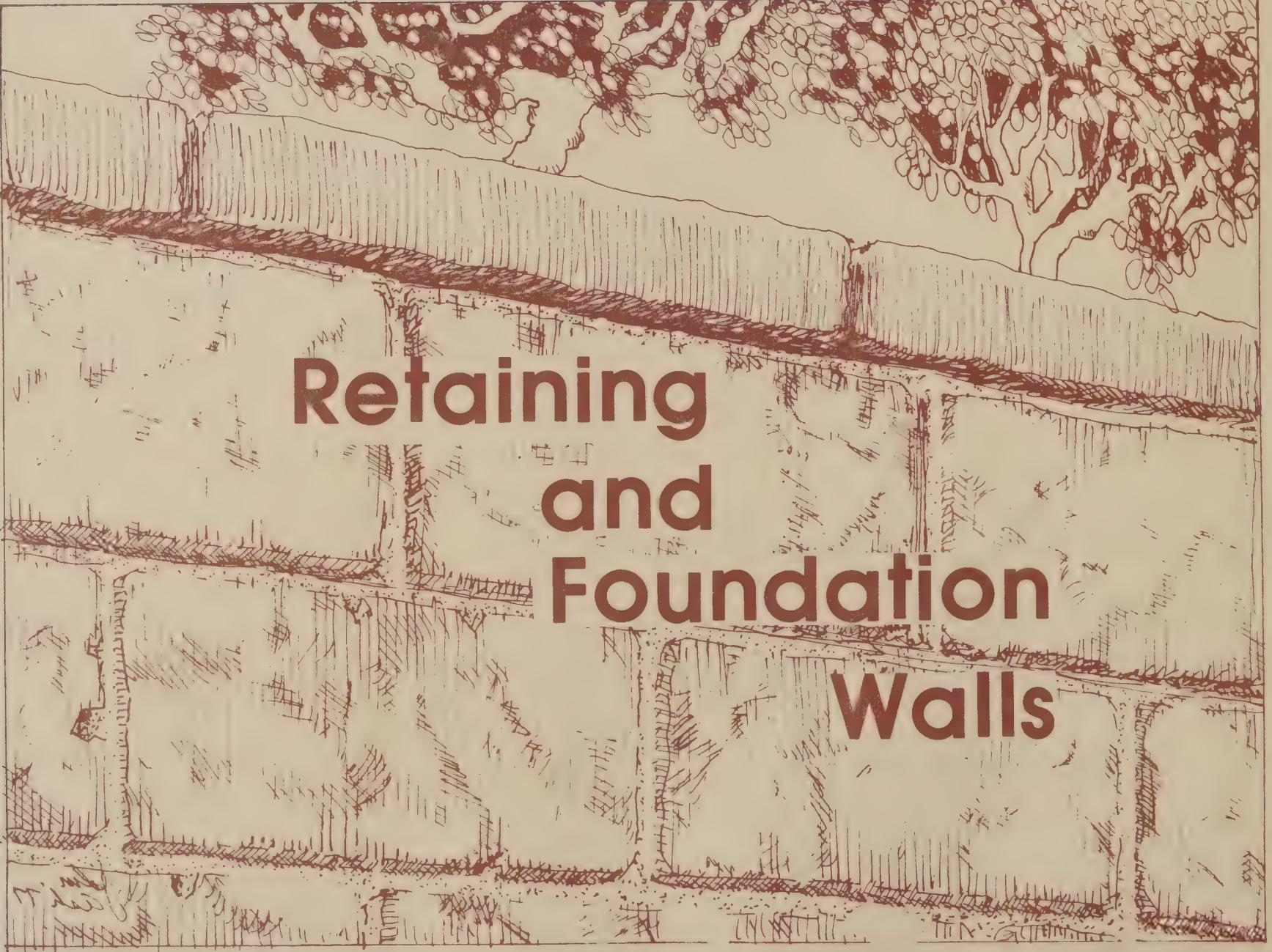
~ WATERPROOFING ~

Protective coatings are sometimes applied to masonry surfaces, especially after chemical stripping or sandblasting, to reduce deterioration due to moisture or polluting chemicals.

Coatings fall into the categories of waterproof coatings such as paint (which is not allowed on previously unpainted masonry surfaces), and water repellent coatings such as silicone or stearate-based sealers.

A word of caution—if these sealants are not constantly maintained, they can actually accelerate deterioration.

If water should enter the wall, severe damage will result. Water trapped behind the coating may freeze causing the brick to break apart in a process called spalling. Further damage may occur if the water dissolves the soluble salts normally present within the masonry and deposits these salts (which are normally washed from the surface) just behind the surface of the brick or stone. These salt deposits will eventually build up and cause the brick or stone to spall. Most sealants must be renewed every two to three years. Stearate-based sealers, which have gained wide acceptance recently, last up to 10 years.



Retaining and Foundation Walls

Foundation walls that are not themselves visible (being faced with another material), may be repaired or replaced in any manner that is structurally sound, as long as the facade appearance remains the same.

In cases where your rehabilitation specialist judges that it is either impossible (due, for example, to unavailability of original materials) or financially unfeasible to repair or reproduce the original retaining wall, a new wall may be constructed using materials and methods compatible with the period and style of the house and neighborhood. The new wall must approximate the scale of the original wall. In no event will a poured or block concrete wall be acceptable in conjunction with an old house. When a different type of wall is built, the entire visible wall must be replaced, rather than a small segment, so that it remains uniform in appearance.

Walls will be repaired or replaced to match the material, method of construction and scale of the original wall.

In repairing most walls that are laid up dry, the original material (rubble stone or cut stone) can be salvaged and simply reset. Where new material must be added it should match the original.

In repairing walls laid up with mortar (rubble stone, cut stone, brick), original material should be reset in new mortar or replaced with new material to match the original. In replacing mortar, the composition, color and tooling of the original mortar should be duplicated (see Masonry section for more information).

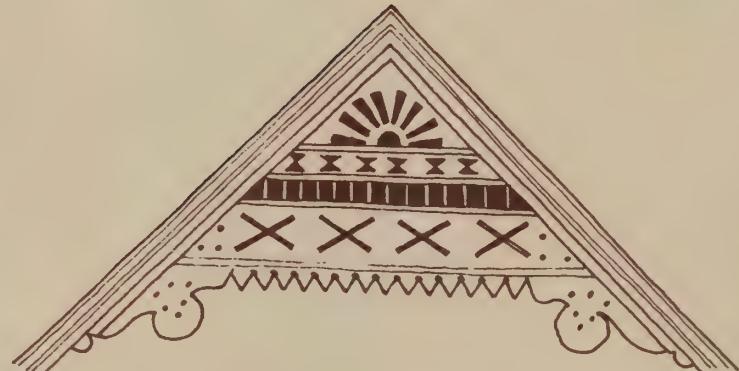
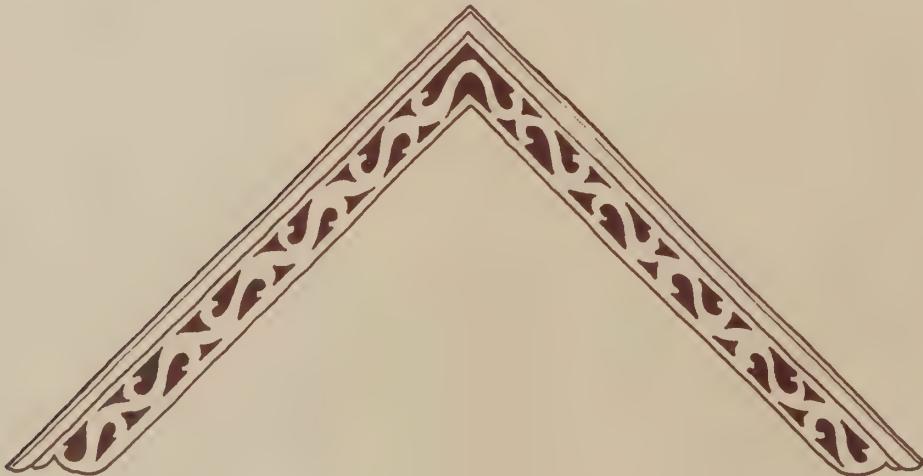
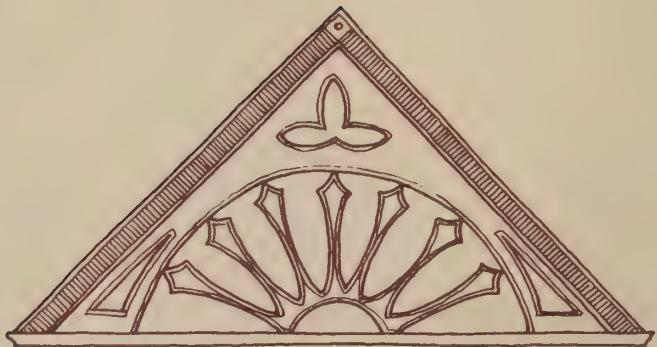
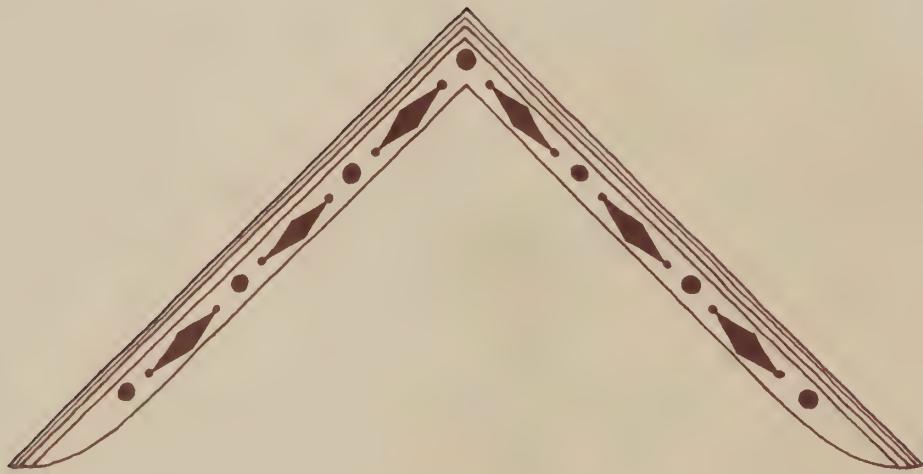


Ornamentation

Retaining the ornamentation used during different periods and with houses of differing styles is essential to preserving the character of old houses. Ornamentation will vary from the simple and carefully proportioned elements typical of periods such as the colonial and federal, to the more flamboyant, individualistic sawn wood decoration of "carpenter gothic" or "Queen Anne" houses. Functional elements such as columns, railing, vergeboard, doors and window frames assumed different decorative forms during different periods—a column's main purpose might still be to support the porch roof, but it also had a secondary function in expressing the aesthetic and symbolism of the time. Some ornamentation is not associated with functional elements—such as dentils, wood applique, applied quoins, finials, etc.,—but is equally important to the overall character of the house.

Original ornamentation should be retained and repaired when necessary. If it can be shown that certain ornamental elements are not original to the house, these may be removed. You are encouraged to replace obviously missing or irreparable damaged elements. If you are unable to duplicate an element exactly, choose a replacement of the same mass, the same material and with similar detailing as the original. Never add ornamentation that is of a different period or style than your house. Especially common (and to be avoided) is the addition of colonial decorative elements to a house of a later period.





DECORATIVE GABLE ENDS AND VERGEBOARDS

SOURCES OF FURTHER INFORMATION

If you are interested, the following materials are useful for consultation. Some are available at local libraries, others are available at the agency noted. Inquire about fees from each agency.

Revitalizing Older Houses in Charlestown
Library, Boston Redevelopment Authority

In the New South End, Every House Counts
Library, Boston Redevelopment Authority

Back Bay Residential District
Back Bay Architectural Commission, Boston Redevelopment Authority

Masonry Conservation Technology
Massachusetts Masonry Institute

Fixing Up Older Houses: Handbook of Exterior Renovations
Brookline Planning Department

Paint Colors for Your 19th Century House
Cambridge Historical Commission

The Old-House Journal
199 Berkeley Place, Brooklyn, New York 11217

APT Journal
Association for Preservation Technology, Box 2487, Station D, Ottawa, Ontario,
Canada, K1P-5W6



**EQUAL HOUSING
OPPORTUNITY**

This report was prepared with funds from the Department of Housing and Urban Development, Authorized under the Housing and Community Development Act of 1974.

